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10/700,310	10/31/2003	Ian Robinson	NG(ST)-6564	5457

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EXAMINER	
LEE, SIU M	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/700,310	ROBINSON, IAN	
	Examiner	Art Unit	
	SIU M. LEE	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 June 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-5,7,9-11,34,37,44,49-52,54-56,63 and 64* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *44,50,51,54-56,63 and 64* is/are allowed.

6)☒ Claim(s) *1,3-5,7,9-11,34 and 37* is/are rejected.

7)☒ Claim(s) *49 and 52* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1, 3-5, 7, 9-11, 34, 37, 44, 49-52, 54-56, 63-64 have been considered, the argument for claims 44, 49-52, 54-56, 63-64 are persuasive but claims 1, 3-5, 7, 9-11, 34, 37 are moot in view of the new ground(s) of rejection.

Specification

2. The disclosure is objected to because of the following informalities:

Claim 49 recites "the signal combiner comprising at least one mixer for downconverting analog carrier signals", the specification does not have antecedent basis for this limitation.

Claim 52 recites "the signal combiner comprising a plurality of coders that provide respective spreading codes to the analog carrier signals"; the specification does not have antecedent basis for this limitation.

Appropriate correction is required.

Claim Objections

3. Claims 9, 49 and 52 are objected to because of the following informalities:

Claim 49 recites "the signal combiner comprising at least one mixer for downconverting analog carrier signals"; according to figures 7-11, the mixer and the

combiner are two different component, therefore, the combiner does not comprises a mixer.

Claim 52 recites "the signal combiner comprising a plurality of coders that provide respective spreading codes to the analog carrier signals"; according to figure 8, the coders 452, 454, 456, and 458 and the combiner (CDMA multiplexer) are different components, therefore, the combiner (CDMA multiplexer) does not comprises a plurality of coders.

Claim 9 depends on claim 1 directed to a multi-carrier transmitter assembly, claim 9 recites "the signal distributor comprising a plurality of decoders, providing respective despreading codes to a multi-carrier signal". Although the language has support for this limitation (paragraph 0029), it is unclear for a multi-carrier transmitter to comprise a decoder and providing despreading codes to copies of transmit signals in the distributor.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3-5, 7, 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites a multi-carrier transmitter assembly comprising a signal distributor that deserializes the analog multi-carrier signal into a plurality of analog carrier signals, the signal distributor comprising a time division demutliplexer, and at least one stop band filter having at least one stopband, each of the at least one stopband having an associated center frequency, the digital exciter being operative to adjust the respective center frequencies of the at least one stopband". The examiner assume the claim is directed to the embodiment disclose in figure 5 wherein the transmitter comprises a time division demux 166 for deserialize the combined signal (paragraph 0044), however, for the embodiment in figure 5, the filters 168, 170, 172, and 174 are not adjustable by the control signal. According to paragraph 0044, the control signal from the exciter 152 is for controlling the time division demutliplexer 166 fro ensuring synchronous operation of the interleaver 162 and demultiplexer 166. It is unclear the claims are directed to the embodiment is figure 4 or embodiment in figure 5.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 34 and 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toivola (US 6,081,515) in view of Bada et al. (US 6,611,565 B1) and Nam (US 7,289,784 B2).

(1) Regarding claim 34:

Toivola discloses a method of transmitting a multi-carrier signal (the examiner interprets a multi-carrier signal is a multi-frequency signal as signal output from the combiner 1 in figure 3), comprising:

generating a multi-carrier signal at an exciter (frequency combiner 1 in figure 3, by the combination in the combiner device 1 a multi-frequency signal is received, column 6, lines 13-15, lines 33-34);

distributing the multi-carrier signal into a plurality of analog signals (power combiner 3 is basically the same as a power divider, column 6, lines 44-46), where distributing the analog multi-carrier signal comprises filtering a plurality of copies of the multi- carrier analog signal at respective tunable filters (each signal output from the power combiner 3 is filtered by electrically controllable filter $4_1...4_n$ as shown in figure 3, column 6, lines 53-64); and

providing the plurality of analog signals to respective antennas for transmission (the output of the electrically controllable filter $4_1...4_n$ are output to the amplifier $5_1...5_n$ and transmit from the antenna $6_1...6_n$ as shown in figure 3, column 6, lines 54 – column 7, lines 4).

Toivola fails to disclose (a) generating a digital multi-carrier signal at an exciter and converting the digital multi-carrier signal into an analog multi-carrier signal, and (b) at least one of the tunable filters being a multiband tunable filter.

With respect to (a), Bada et al. discloses a transmitter comprising means for digital modulation of a multicarrier signal; means for summing the numeric samples of

the modulation carriers; and means for conversion to analogue from (DAC) of the signal (figure 8, column 6, lines 41-48).

It is desirable to generate a digital multi-carrier signal at an exciter and converting the digital multi-carrier signal into an analog multi-carrier signal because through digital processing, it can increase the space of the useful signal from the continuous base band spectrum. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Bada et al. in the method of Toivola to improve the throughput of the transmitting method.

With respect to (b), Nam discloses an active tunable filter for multi-band mobile radio communication (figure 1 and 6, column 1, line 61-63, column 2, lines 5-7).

It is desirable to replace at least one of the tunable filter of Toivola by the tunable multi-band filter of Nam because it provide the benefit of suppression spurious attenuation and rejected harmonics, a low noise figure, and capable of being manufactured as an integrated circuit (column 5, lines 1-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to replace at least a tunable filter of Toivola by the tunable multi-band filter of Nam to reduce the size of the filter and improve the performance.

(2) Regarding claim 37:

Toivola discloses the distributing of the analog multi-carrier signal comprising deserializing a plurality of carrier signals comprising the multi-carrier signal (splitting the multicarrier signal and filtered by electrically controllable filter $4_1...4_n$ put the multicarrier

signal into a single frequency signal transmitted by each antenna $6_1...6_n$ as shown in figure 3, column 6, lines 54 – column 7, lines 4).

2. Claims 1, 4, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toivola (US 6,081,515) in view of Wu et al. (US 6,985,434 B2), and Schilling (US 6,115,368).

(1) Regarding claim 1 (claim 1 is rejected based on the embodiment in figure 5 wherein the filter is not adjustable by the exciter):

Toivola discloses a method of transmitting a multi-carrier signal (the examiner interprets a multi-carrier signal is a multi-frequency signal as signal output from the combiner 1 in figure 3), comprising:

generating a multi-carrier signal at an exciter (frequency combiner 1 in figure 3, by the combination in the combiner device 1 a multi-frequency signal is received, column 6, lines 13-15, lines 33-34);

distributing the multi-carrier signal into a plurality of analog signals (power combiner 3 is basically the same as a power divider, column 6, lines 44-46), where distributing the analog multi-carrier signal comprises filtering a plurality of copies of the multi- carrier analog signal at respective tunable filters (each signal output from the power combiner 3 is filtered by electrically controllable filter $4_1...4_n$ as shown in figure 3, column 6, lines 53-64), at least one of the tunable filters being a multiband tunable filter (it is easy to take action or change or amend the frequency setting of other filter, column 7, lines 34-35, for a special embodiment all controllable filters in the arrangement can

be tuned to same frequency, alternatively, certain filters can be tuned to the same frequency, while other are tuned to in to another or different frequency and so on, column 8, lines 6-12, since the frequency setting of the controllable filter can be changed or amended, the examiner interprets the electrically controllable filter as a multiband tunable filter); and

providing the plurality of analog signals to respective antennas for transmission (the output of the electrically controllable filter $4_1...4_n$ are output to the amplifier $5_1...5_n$ and transmit from the antenna $6_1...6_n$ as shown in figure 3, column 6, lines 54 – column 7, lines 4).

Toivola fails to disclose (a) a digital exciter that provides a digital multi-carrier signal from baseband data, the digital multi-carrier signal comprising a plurality of time interleaved digital signals; and a digital-to-analog converter that converts the digital multi-carrier signal into an analog multi-carrier signal; and the signal distributor comprising a time division demultiplexer that separate the plurality digital signals into the plurality of analog carrier signals; and (b) at least one stopband filter having at least one stopband, each of the at least one stopband having an associated center frequency.

With respect to (a), Wu et al. discloses a digital exciter (an adaptive coding and modulation block in figure 1) that provides a digital multi-carrier signal from baseband data, the digital multi-carrier signal comprising a plurality of time interleaved digital signals (an adaptive coding and modulation block in figure 1 generating an OFDM symbol by FEC encoder, interleaver, and m-PSK n-QAM modulator, column 4, line 62 –

column 5, line 4); and a digital-to-analog converter that converts the digital multi-carrier signal into an analog multi-carrier signal (the output of the QAM modulator is a digital intermediate frequency signal, a digital to analog converter transform the digital IF signal to analog for transmission, column 1, lines 43-46), and the signal distributor comprising a time division demultiplexer that separate the plurality digital signals into the plurality of analog carrier signals (multiplex block in figure 1 receives the signal output from adaptive coding modulation block, the examiner interpret the multiplex block as a time division multiplexer).

It is desirable to have a digital exciter that provides a digital multi-carrier signal from baseband data, the digital multi-carrier signal comprising a plurality of time interleaved digital signals; and a digital-to-analog converter that converts the digital multi-carrier signal into an analog multi-carrier signal; and the signal distributor comprising a time division demultiplexer that separate the plurality digital signals into the plurality of analog carrier signals because it can randomize the error and improve the integrity of the transmitted and received signal and improve the transmitter system performance by adapt to the channel condition. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Wu et al. in the transmitter of Toivola to improve the tolerance to interference and performance of the transmitter.

With respect to (b), Schilling discloses at least one stopband filter (notch filter) having at least one stopband (notching frequency), each of the at least one stopband having an associated center frequency (the adjustable-notch filter 725 has its center

frequency, column 9, lines 15-16), the digital exciter being operative to adjust the respective center frequencies of the at least one stopband (the base station may have a sensor which detects the microwave power or energy (interference) of the one or more fixed service, the sensor determines the center frequency ad the bandwidth of the fixed-service and then the controller 726 in figure 4c adjusts the adjustable–notch filter 725 to notch the spread-spectrum processed data at this frequencies and bandwidth, column 9, lines 35-42).

It is desirable to have at least one stopband filter having at least one stopband, each of the at least one stopband having an associated center frequency, the digital exciter being operative to adjust the respective center frequencies of the at least one stopband because it avoid interfering with the co-existed services. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Schilling in the transmitter of Toivola, and Wu et al. to be adaptive to the changing environment.

(2) Regarding claim 4:

Toivola discloses the signal distributor further comprising at least one passband filter (electrically controllable filter $4_1...4_n$ in figure 3) having at least one passband, each of the at least one passband having an associated center frequency, the digital exciter (base station) being operative to adjust the respective center frequencies of the at least one passband (controllable filter arrangements provided in the antenna arrangement are tuned, 180, which suitable is done via the base station, column 10, lines 20-23; it is

inherent that a controllable bandpass filter has at least one passband having an associated center frequency).

(3) Regarding claim 5:

Toivola discloses a given bandpass filter (electrically controllable filter $4_1...4_n$ in figure 3) from the at least one passband filter having a plurality of passbands (controllable filter arrangements provided in the antenna arrangement are tuned, which suitable is done via the base station, column 10, lines 20-23; it is inherent that a controllable bandpass filter has a plurality of passband having an associated center frequency), each of the respective center frequencies of the plurality of passbands being electrically adjustable by the exciter (electrically controllable filter $4_1...4_n$ in figure 3 is tuned by the base station, column 10, lines 20-23).

(4) Regarding claim 7 (the examiner assumes the claim means "the at least one stopband filter having a plurality of stopbands):

Schilling further discloses the at least one stopband filter (adjustable notch filter 725 in figure 4c) having a plurality of stopband (since adjustable notch filter 725is adjustable, it is inherent that the adjustable notch filter 725 has a plurality of stopband, the adjustable notch filter 725 has its center frequency and bandwidth, column 9, lines 15-20), each of the respective center frequencies of the plurality of stopbands being electrically adjusted by the exciter (controller 726 in the base station, figure 4c, the base station may have a sensor which detects the microwave power or energy of the one or more fixed-services, the sensor determines the center frequency and the bandwidth of

the fixed-service and the controller 726 adjusts the adjustable-notch filter 725 to notch the spread-spectrum processed data at those frequencies, column 9, lines 25-42).

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toivola (US 6,081,515) in view of Wu et al. (US 6,985,434 B2), and Schilling (US 6,115,368) as applied to claim 1 above, and further in view of Lau et al. (US 6,291,924 B1).

Toivola, Wu et al., Campanella, and Shilling disclose all the subject matter as discuss in claim 1 except the at least one stopband filter comprising a surface acoustic wave (SAW) filter having at least one electrically actuatable micromechanical structures.

However, Lau et al. discloses a surface acoustic wave (SAW) filter having at least one electrically actuatable micromechanical structures (column 9, lines 9-14, line 59-column 10, line 24, and figure 22).

It is desirable to surface acoustic wave (SAW) filter having at least one electrically actuatable micromechanical structures because it avoids the need to fabricate a new SAW device (column 1, lines 62-63). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Lau et al. in the system of Toivola, Wu et al., and Shilling to improve the flexibility of the system.

4. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toivola (US 6,081,515) in view of Wu et al. (US 6,985,434 B2), and Schilling (US

6,115,368) as applied to claim 1 above, and further in view of Naidu et al. (US 5,805,983).

(1) Regarding claim 10:

Toivola, Wu et al., Campanella, and Shilling discloses all the subject matter as discuss in claim 1 except the exciter and the digital-to-analog converter being located at a first location, and at least one of the pluralities of antennas being located at a second location, spatially remote from the first location.

However, Naidu et al. discloses the exciter and the digital-to-analog converter being located at a first location, and at least one of the plurality of antennas being located at a second location, spatially remote from the first location (base station 50_1 and 50_2 are connected to the remote antenna 68_1, 68_2, 70_1 and 70_2 through fiber node 58 and coaxial cable 60, column 1, line 58-column 2, line1).

It is desirable for the exciter and the digital-to-analog converter being located at a first location, and at least one of the plurality of antennas being located at a second location, spatially remote from the first location because it enhanced the air frame timing between cells served by the remote antenna unit (column 1, lines 24-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Naidu et al. in the system of Toivola, Wu et al., Campanella, and Shilling to improve the performance of the system.

(2) Regarding claim 11:

Toivola, Wu et al., Campanella, and Shilling discloses all the subject matter as discuss in claim 1 except at least one antenna being located at a third location, spatially remote from the first location and the second location.

However, Naidu et al. disclose at least one antenna being located at a third location, spatially remote from the first location and the second location (as shown in figure 3, each of the four transmission paths may have different length which cause different delay time for the signal, column 2, lines 50-52).

It is desirable for at least one antenna being located at a third location, spatially remote from the first location and the second location because it equalizes the system without requiring the transmission link to be out of service during the upgrades or repairs (column 9, lines 26-30). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to employ the teaching of Naidu et al. in the system of Toivola, Wu et al., and Shilling to improve the reliability of the system.

Allowable Subject Matter

5. Claims 44, 50-51, 54-56, 63-64 are allowed.

6. Claims 49 and 52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

(1) Regarding claim 44, 50-51, 54-55:

The present invention describes a receiver assembly, comprising a plurality of antennas that each receive an analog signal comprising at least one frequency band of interest and at least one frequency band containing an interfering signal; a signal combiner that combines at least two of the analog signals from the plurality of antennas into a multi-carrier signal; a bypass configured to allow an analog signal from at least one of the plurality of antennas to bypass the signal combiner; an analog-to-digital converter that creates a digital representation of the multi-carrier signal; a digital processing component that receives the digital representation of the multi-carrier signal and produces a control signal from the digital representation for each analog signal, representing an associated antenna, specifying the at least one frequency band containing the interfering signal; and a plurality of electrically adjustable stopband filters, each electrically adjustable stopband filter being associated with one of the plurality of antennas, a given electrically adjustable stopband filter being electrically adjustable to change respective associated center frequencies of at least one stopband associated with the filter in response to the control signal associated with the associated antenna of the given adjustable filter as to attenuate the specified at least one frequency band within the analog signal received at the associated antenna of the given adjustable filter. The closest prior art, Caimi et al. (US 2004/0227683 A1) in view of Nuutinen et al. (US 2003/0016771 A1) and Pratt (US6,664,921 B2) discloses a similar system but fail to disclose a bypass configured to allow an analog signal from at least one of the plurality of antennas to bypass the signal combiner and a digital processing component that receives the digital representation of the multi-carrier signal and produces a control

signal from the digital representation for each analog signal, representing an associated antenna, specifying the at least one frequency band containing the interfering signal; and a plurality of electrically adjustable stopband filters, each electrically adjustable stopband filter being associated with one of the plurality of antennas, a given electrically adjustable stopband filter being electrically adjustable to change respective associated center frequencies of at least one stopband associated with the filter in response to the control signal associated with the associated antenna of the given adjustable filter as to attenuate the specified at least one frequency band within the analog signal received at the associated antenna of the given adjustable filter. This distinct feature has been added to independent claim 44, thus rendering claims 44, 50-51, 54-55 allowable.

(2) Regarding claims 56, 63-64:

The present invention describes a receiver assembly, comprising a plurality of antennas that each receive an analog signal comprising at least one frequency band of interest and at least one frequency band containing an interfering signal; a code division multiplexer that combines the analog signals from the plurality of antennas into an analog multicarrier signal; an analog-to-digital converter that receives the multicarrier analog signal and creates a multicarrier digital signal comprising a representation of each analog signal in digital form; a digital processing component that receives the digital representation of each analog signal and produces a control signal from the digital representation for each analog signal, representing an associated antenna, specifying the at least one frequency band containing the interfering signal; and a plurality of electrically adjustable passband filters, each electrically adjustable passband

filter being associated with one of the plurality of antennas, a given electrically adjustable passband filter being electrically adjustable to change respective associated center frequencies of at least one passband associated with the filter in response to the control signal associated with the associated antenna of the given adjustable filter as to attenuate the specified at least one frequency band within the analog signal received at the associated antenna of the given adjustable filter. The closest prior art, Caimi et al. (US 2002/0122008 A1) in view of Takada (US 2002/0196876 A1) discloses a similar system but fail to disclose a code division multiplexer that combines the analog signals from the plurality of antennas into an analog multicarrier signal; an analog-to-digital converter that receives the multicarrier analog signal and creates a multicarrier digital signal comprising a representation of each analog signal in digital form. This distinct feature has been added to independent claim 56, thus rendering claims 56, 63, and 64 allowable.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SIU M. LEE whose telephone number is (571)270-1083. The examiner can normally be reached on Mon-Fri, 7:30-4:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Siu M Lee/
Examiner, Art Unit 2611
11/7/2009

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611